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Subject: Remember how important even a single bug can be
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I just heard Eliza talking about this, so I thought I'd share this story. Back in the mid-'80s there was a machine called the Therac-25, used in treating cancer via radiation. Obviously, radiation can kill people when misused, and a bug in the Therac-25 did just this. To quote Wikipedia (<http://en.wikipedia.org/wiki/Therac-25>):

The accidents occurred when the high-power electron beam was activated instead of the intended low power beam, and without the beam spreader plate rotated into place. Previous models had hardware interlocks in place to prevent this, but Therac-25 had removed them, depending instead on software interlocks for safety. The software interlock could fail due to a race condition. The defect was as follows: a one-byte counter in a testing routine frequently overflowed; if an operator provided manual input to the machine at the precise moment that this counter overflowed, the interlock would fail.[2]

The high-powered electron beam struck the patients with approximately 100 times the intended dose of radiation, delivering a potentially lethal dose of beta radiation. The feeling was described by patient Ray Cox as "an intense electric shock", causing him to scream and run out of the treatment room.[3] Several days later, radiation burns appeared and the patients showed the symptoms of radiation poisoning; in three cases, the injured patients later died.

The lesson: Test your code. A single bug might just kill someone!

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